Patent Claims

1. A method for wire-free and non-contacting power and data transport in systems which comprise fixed and moving structural parts as well as a three-phase motor as a drive for the moving structural parts, with the three-phase motor being used in the same way for wire-free transmission of power and/or information, as a result of which devices which are arranged on the moving structural parts of the system are supplied with power and/or data.

2. The method as claimed in claim 1, with the three-phase motor having a stator and a secondary part, characterized in that the power is transmitted by means of the inductive coupling between the stator of the three-phase motor and the secondary part of the three-phase motor.

3. The method as claimed in claim 2, characterized in that slip which is present between the stator and the secondary part is used in order to transmit power from the stator of the three-phase motor to the secondary part of the three-phase motor.

4. The method as claimed in claim 2, characterized in that an alternating current whose frequency is higher than the fundamental, and is preferably three times the power supply system frequency, is applied to the stator, in order to transmit power from the stator of the three-phase motor to the secondary part of the three-phase motor.

5. The method as claimed in claim 1, characterized in that the information is transmitted by means of inductive coupling between the stator part and the secondary part, with the data being modulated and being

transmitted in the form of signals at a considerably higher frequency than the power supply system frequency.

6. An apparatus for carrying out the method as claimed in claim 1 or as claimed in one of claims 2 to 6, having a three-phase motor which comprises a stator and a secondary part, characterized in that the stator (10, 10') and the secondary part (20, 20') respectively have three-phase windings (11 to 13, 21 to 23) with the same number of pole pairs and with the same pole pitch.

7. The apparatus as claimed in claim 6, characterized in that the three-phase motor is a linear motor (10, 20).

8. The apparatus as claimed in claim 6, characterized in that the three-phase motor is a rotating motor (10', 20').

9. The apparatus as claimed in claim 6, characterized in that the windings (11 to 13) of the stator (10, 10') are connected to the three-phase power supply system or to an associated motor controller (30), with the windings (21 to 23) of the secondary part (20, 20') being connected in star or delta.

10. The apparatus as claimed in claim 9, characterized in that the motor controller (30) is a frequency converter.

11. The apparatus as claimed in claim 10, characterized in that the free ends of the windings (21 to 23) of the secondary part (20, 20') are connected to a 6-pulse rectifier (24) if they are connected in star, and the nodes of the windings (21 to 23) of the secondary par (20, 20') are connected to a 6-pulse rectifier (24) if they are connected in delta.

12. The apparatus as claimed in one of claims 6 to 11, characterized in that an energy

storage element (40) whose energy storage state is controllable is provided for power transmission.

13. The apparatus as claimed in claim 12, characterized in that the energy storage element is a capacitor (28), for example a so-called supercap and/or a rechargeable battery.

14. The apparatus as claimed in one of claims 6 to 13, characterized in that the voltage across the energy storage element (40) is kept virtually constant via a controllable switch (25) independently of the power drawn and of the speed of the secondary part (20, 20').

15. The apparatus as claimed in one of claims 6 to 14, characterized in that a coding device (35) is provided for transmission of data as information.

16. The apparatus as claimed in claim 15, characterized in that a control device (45) enables the coding device (35) to transmit message telegrams.

17. The apparatus as claimed in one of claims 6 to 15, characterized in that at least one coupling unit (60, 60') is provided.

18. The apparatus as claimed in claim 16, characterized in that the coupling unit (60, 60') has a high-frequency transformer with four windings (61 to 64) as well as three coupling capacitors (66 to 68).

19. The apparatus as claimed in one of claims 7 to 17, with at least one transport vehicle being provided above the stator of the linear motor, characterized

in that sensors (78) are provided, by means of which the location of the vehicle (50, 50', ..., $50^{n'}$) above the stator (10, 10') can be detected.